

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1-34. (Cancelled)

1 35. (Currently amended) A method for providing object change
2 information from a first system to one or more systems for synchronizing the one
3 or more systems with the first system, the one or more systems having one or
4 more object caches for storing objects, the method comprising the steps of:
5 changing an object in the first system;
6 ~~determining object change information representing a change made to the~~
7 ~~object in the first system; and~~
8 during a transaction, storing the set of changes to the object into a
9 transaction cache of the first system;
10 computing an object change set, when the transaction is committed,
11 representing the set of changes to the object;
12 translating the object change set into a database language;
13 sending the translated object change set to a central database system for
14 update; and
15 permanently committing the set of changes to an in-memory object cache
16 if the central database system reports no error when updating the objects;
17 wherein permanently committing the set of changes includes distributing
18 the object change information directly from the first system to one or more
19 systems to cause the one or more systems to merge the object change information

20 into the one or more object caches so as to synchronize the one or more systems
21 with the first system;

22 wherein the objects are included in a remote database system; and

23 wherein one or more of the first system and the one or more systems can
24 perform database operations on a given object within the database.

1 36. (Previously presented) The method as claimed in claim 35 further
2 comprising a step of establishing a communication link between the first system
3 and the one or more systems wherein the distributing step distributes the object
4 change information from the first system to the one or more systems through the
5 communication link.

1 37. (Previously presented) The method as claimed in claim 36 wherein the
2 establishing step establishes the communication link based on a publish/subscribe
3 protocol.

1 38. (Previously presented) The method as claimed in claim 35 further
2 comprising a step of registering the one or more systems in the first system prior
3 to the distributing step wherein the distributing step distributes the object change
4 information to the registered one or more systems.

1 39. (Previously presented) The method as claimed in claim 35 further
2 comprising a step of sending the object change information to the database for
3 updating the object in the database with the object change information.

1 40. (Previously presented) The method as claimed in claim 39 further
2 comprising the steps of:

3 receiving an error message from the database when the updating of the
4 object in the database fails; and

5 discarding the object change information prior to the distributing step in
6 response to the error message.

1 41. (Previously presented) The method as claimed in claim 35 wherein the
2 first system includes an object cache for storing one or more objects, and the
3 method further comprises a step of merging the object change information into the
4 object cache of the first system.

1 42. (Previously presented) The method as claimed in claim 35 wherein the
2 determining step determines the object change information as a minimal set of
3 information representing the change made to the object.

1 43. (Previously presented) The method as claimed in claim 35 wherein the
2 determining step determines the object change information to include a primary
3 key identifying the object.

1 44. (Previously presented) The method as claimed in claim 35 wherein the
2 object includes an attribute for containing object data or a value of a relationship
3 with one, or more, other object, and the determining step determines the object
4 change information to include a change made in the attribute of the object.

1 45. (Previously presented) The method as claimed in claim 35 wherein the
2 first system includes a cache for storing one or more objects, the method further
3 comprising the steps of:

4 receiving object change information distributed from the one or more
5 systems and containing information of changes made to one or more objects in the
6 one or more systems; and
7 merging the object change information received from the one or more
8 systems into the objects in the cache of the first system to synchronize the first
9 system with the one or more systems.

1 46. (Currently amended) A method for providing object change
2 information from a first system to one or more systems for synchronizing the one
3 or more systems with the first system, the first system having a first object cache
4 for storing one or more objects and the one or more systems having one or more
5 object caches for storing one or more objects, the method comprising the steps of:

6 ~~determining object change information representing a change made to an~~
7 ~~object in the first system; and~~
8 ~~during a transaction, storing the set of changes to the object into a~~
9 ~~transaction cache of the first system;~~

10 computing an object change set, when the transaction is committed,
11 representing the set of changes to the object;

12 translating the object change set into a database language;
13 sending the translated object change set to a central database system for
14 update; and

15 permanently committing the set of changes to an in-memory object cache
16 if the central database system reports no error when updating the objects;

17 wherein permanently committing the set of changes includes distributing
18 the object change information directly from the first system to the one or more
19 systems to cause the one or more systems to merge the object change information
20 into the one or more object caches so as to synchronize the object in the one or

21 more object caches of the one or more systems with the changed object in the first
22 system;
23 wherein the objects are included in a remote database system; and
24 wherein one or more of the first system and the one or more systems can
25 perform database operations on a given object within the database.

1 47. (Previously presented) The method as claimed in claim 46 further
2 comprising a step of establishing a communication link between the first system
3 and the one or more systems wherein the distributing step distributes the object
4 change information from the first system to the one or more systems through the
5 communication link.

1 48. (Previously presented) The method as claimed in claim 46 further
2 comprising a step of registering the one or more systems in the first system prior
3 to the distributing step wherein the distributing step distributes the object change
4 information to the registered one or more systems.

1 49. (Previously presented) The method as claimed in claim 46 further
2 comprising a step of sending the object change information from the first system
3 to the database for updating the object in the database with the object change
4 information.

1 50. (Previously presented) The method as claimed in claim 49 further
2 comprising the steps of:
3 receiving an error message from the database when the updating of the
4 object in the database fails; and
5 discarding the object change information prior to the distributing step in
6 response to the error message.

1 51. (Previously presented) The method as claimed in claim 46 further
2 comprising a step of merging the object change information into the first object
3 cache of the first system so as to synchronize the object in the first object cache
4 with the changed object in the first system.

1 52. (Previously presented) The method as claimed in claim 46 wherein the
2 determining step determines the object change information as a minimal set of
3 information representing the change made to the object.

1 53. (Previously presented) The method as claimed in claim 46 wherein the
2 determining step determines the object change information to include a primary
3 key identifying the object and any changed attribute of the object.

1 54. (Previously presented) The method as claimed in claim 46 further
2 comprising steps of:
3 receiving object change information distributed from the one or more
4 systems and containing information of changes made to one or more objects in the
5 one or more systems; and
6 merging the object change information received from the one or more
7 systems into the objects in the first cache of the first system to synchronize the
8 first system with the one or more systems.

1 55. (Currently amended) Computer readable media storing instructions for
2 use in the execution in a computer of a method for providing object change
3 information from a first system to one or more systems for synchronizing the one
4 or more systems with the first system, the one or more systems having one or
5 more object caches for storing objects, the method comprising the steps of:
6 changing an object in the first system;

7 determining object change information representing change made to the
8 object in the first system; and
9 during a transaction, storing the set of changes to the object into a
10 transaction cache of the first system;
11 computing an object change set, when the transaction is committed,
12 representing the set of changes to the object;
13 translating the object change set into a database language;
14 sending the translated object change set to a central database system for
15 update; and
16 permanently committing the set of changes to an in-memory object cache
17 if the central database system reports no error when updating the objects;
18 wherein permanently committing the set of changes includes distributing
19 the object change information directly from the first system to the one or more
20 systems to cause the one or more systems to merge the object change information
21 into the one or more object caches so as to synchronize the one or more systems
22 with the first system
23 wherein the objects are included in a remote database system; and
24 wherein one or more of the first system and the one or more systems can
25 perform database operations on a given object within the database.